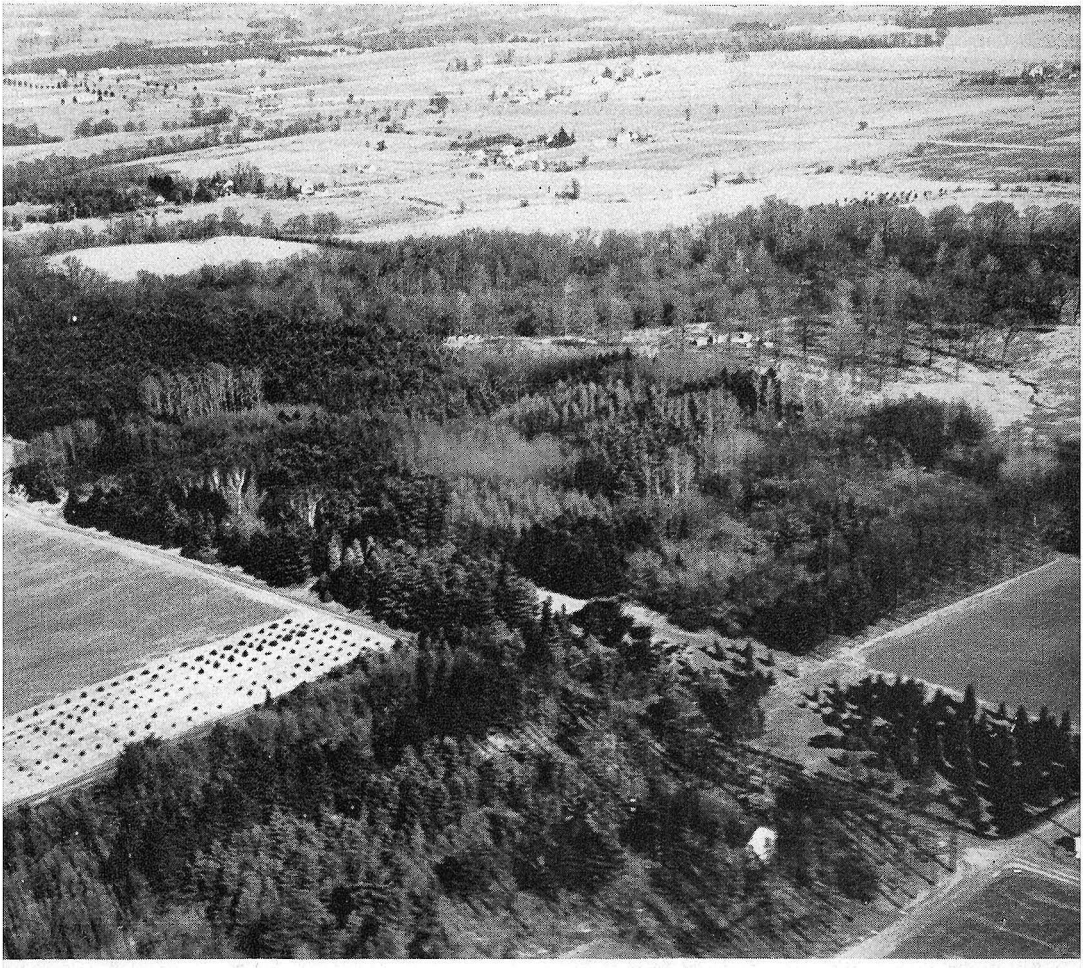
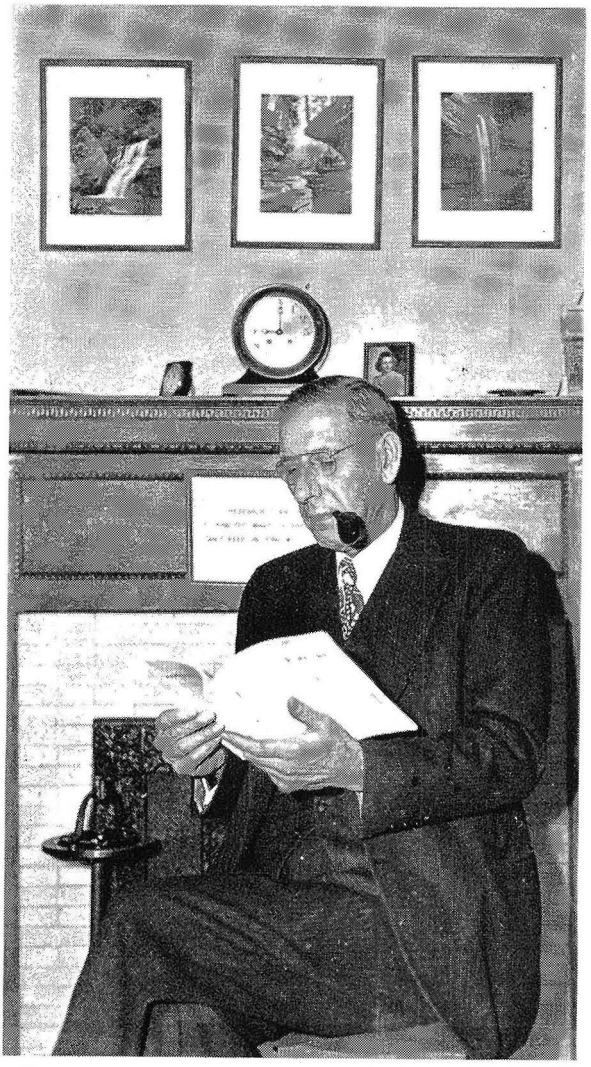
SPECIAL CIRCULAR 82 MAY, 1950

THE SECREST ARBORETUM



OHIO AGRICULTURAL EXPERIMENT STATION
WOOSTER, OHIO



Dr. Edmund Secrest on the day of his retirement as Director of the Ohio Agricultural Experiment Station.

EDMUND SECREST
1881 - 1949

Dr. Edmund Secrest, Chairman of the Department of Forestry and former Director of the Station, died in Ford Hospital, Detroit, on November 28, 1949. Dr. Secrest served the Experiment Station during almost his entire professional career, having come to the Station in 1906 after several years of duty with the U. S. Forest Service following graduation from Kansas State College. Dr. Secrest held honorary Doctor of Science degrees from his Alma Mater and from the College of Wooster.

As State Forester and Chief of the Department of Forestry, Dr. Secrest led in the development of state-owned forests and parks in the forestry research program of Ohio, and he was the guiding hand in nurturing the famous arboretum at Wooster. As Director from 1937-47 Dr. Secrest guided the destiny of the Station during one of its most critical periods. As a member of the Association of State Foresters, the American Forestry Association, the Ohio Forestry Association, and the Ohio Academy of Science, and through his services as a member of various committees of the Association of Land-Grant Colleges and Universities, Dr. Secrest contributed his talents to the improvements effected by those agencies over many years.

Although devoting most of his time to the many demands of his professional career, Dr. Secrest still was active in civic and community affairs and was one of Wooster's most prominent citizens. His passing constitutes a real loss not only to his immediate family, but to his associates, his community, his state, and the nation, and is compensated for only by the evident memorials in the hills and on the farms of Ohio.

THE SECREST ARBORETUM

O. D. DILLER and L. C. CHADWICK

The forest and ornamental plantings at the Ohio Agricultural Experiment Station were started by the late Edmund Secrest in 1908. Until recently, these plantations have been known as the Forest Arboretum. It is now appropriate that the name should be changed to "Secrest Arboretum" in honor of the father of forestry in Ohio.

Since 1908 the plantings at the Ohio Station have been expanded to include well over 600 species and varieties of trees and shrubs from many parts of the world. It is the purpose of this publication to serve as a guide to the Arboretum and to present up-to-date information on the growth and survival of some of the outstanding plots and specimens.

The Purpose of the Arboretum

One purpose of the arboretum is to determine the species and varieties of trees adapted for ornamental, windbreak, and shelter-belt uses in Ohio. There are many varieties of spruces, firs, yews, arborvitae, and other coniferous trees and shrubs growing here for observation by people interested in landscaping and the planting of shelterbelts.

The second purpose of the arboretum is to determine the species of trees adapted for artificial reforestation in Ohio and to determine the silvicultural requirements that will obtain best results in growth and maturity. Experiments have thus been planned to answer many questions that arise in this field. It is necessary to know what native and exotic species are adapted to our soils and latitude; whether it is better to plant them in pure or mixed stands; if in mixed stands, what associates are best; whether the mixture shall be made by the use of single rows or in checker-board fashion in small groups with 10 or 20 trees of the same species in a group.

It is also necessary to know the best spacing to use for trees of various species in forest plantations. Subsequently, it is necessary to determine the time and degree of thinning trees in plantings in order to facilitate the best growth and development.

In a wide collection of tree species from many parts of the world, such as is found in the arboretum, it is to be expected that many species will fail under Ohio soil and climatic conditions. It is a part of the job of the Ohio Station to determine the species which are unsuited, as well as those which are suited, for Ohio conditions. This relieves the

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The Arborvitae in plot 86 yielded valuable posts in 1949.

individual tree grower of the necessity for expending time, labor, and money to find out for himself. This is especially important when dealing with a long term crop such as timber.

Perhaps one of the best examples of an exotic species which at one time was promising as a tree for planting on worn-out fields in Ohio is the Corsican pine from the mountains of Corsica and the Mediterranean country. This was one of the most rapid-growing and promising species 20 years ago, but in recent years it has been completely destroyed in many plantings in southern Ohio by a needle blight disease.

On the other hand, it has been possible to bring to this region a number of exotic species which have demonstrated their value for both forestry and ornamental uses. The European larch which is found more or less generally throughout Europe is one of our most valuable foreign timber trees and is especially well-adapted for shelter belts and for aesthetic effects. Many other trees which grow in the United States but are not native to Ohio have been found to grow well in the arboretum. The northern white cedar from the Lake States and the bald cypress native to the southeastern states have made excellent growth.

Although most of the plots and specimens in the arboretum are of interest, the following are the most successful ones and are of particular interest to people who have in mind the establishment of forest plantations or selecting trees and shrubs for landscaping purposes.

Outstanding Forestry Plots*

BALD CYPRESS

Plot 295

The bald cypress is native to the southeastern states. The limit of its northern range is southern Illinois. In the far southeastern range it occupies swamp lands in more or less pure stands, and here the trunks of the trees develop a large buttressed base. Further north the species is less abundant and occurs in mixture with other lowland trees.

The wood of the cypress is highly valued for many uses including posts, piling, tanks, railroad ties, shingles, and construction lumber. The wood is relatively durable in contact with soil and weather and there is little tendency for it to warp, shrink, or twist.

These trees were planted in 1914, and the plot contains 3/10 acre. In 1949, the maximum diameters of the trees range from 10 to 13 inches and the maximum height from 50 to 56 feet.

In the winter of 1949, a thinning was made in which 55 of the suppressed and crowded trees were removed. The plot now contains 85 trees or at the rate of 383 per acre. The trees removed in the thinning period produced 137 posts and 26 small saw logs, the gross value of which was $94.50, or at the rate of $315.00 per acre and equal to an annual growth value of $9.00. The remaining stand has been improved by the thinning, in which less than 1/3 of the trees by volume were removed. On this basis the total stand before thinning had a gross value of $283.50 and at the rate of $945.00 per acre. It had grown into value at the rate of $27.00 per acre per year.

The site on which these trees were planted is well suited to the species. It may be planted where black walnut thrives, or in lowlands or flood plains, where it will not be washed out. There are many waste places or unused land on farms where bald cypress may be planted with profit.

RED OAK

Plot 314

This plot was planted to catalpa in 1904 and the trees clear cut for posts in 1915. In the spring of 1914, a part of the tract was planted by direct seeding to white pine in seed spots. The seeding was not successful, and in the fall of 1915 the entire area was planted in three subplots to red oak—1-year seedlings, 2-year transplants, and by direct seeding of acorns. No difference in the growth or quality of the trees resulted from the thre methods of planting, although direct seeding is the most economical.

Current measurements in the plots show the maximum diameters of the trees to average 6 to 8 inches, and the height from 55 to 60 feet.

A relatively heavy thinning was made in the stand in the winter of 1949. The trees were purposely permitted to crowd themselves to force height at the expense of diameter growth. The thinning has released the crowns of the trees, which will spread, and subsequently stimulate diameter development in the long slender trunks and will ultimately produce good quality saw timber.

An interesting feature of this tract is the natural seeding of white and Scotch pines which has occurred over the past 25 years. The mother trees in the windbreak to the west of the tract were planted in 1895, and strong westerly winds blew the seed they produced eastward into the soil. Many hundreds of seedlings started, and many were destroyed by competing weeds and brush growth. The infiltration of pines continues, however, and it may be expected that since the oak stand has been opened, more pine seedlings will establish themselves in the openings. There seems to be a tendency for Scotch pine to grow straighter trunks in mixture with hardwoods.

SCOTCH PINE

Plots 297, 298, 299

The Scotch pine is an important timber tree of Europe, where it grows rapidly and with good form in the central and northern regions of the continent.

The earlier plantings of Scotch pine in America have not been as successful as those of Europe. The trees occasionally grow crooked due to very rapid growth in the earlier stages of development. This makes them subject to wind, snow, and ice injury.

*This section was prepared by the late Edmund Secrest during the summer of 1949.

Bald cypress planted in 1914.

However, the hardiness, vigor, ease of establishment, and adaptation to a wide range of soil and site conditions offsets to an extent this weakness of the species. It will often thrive where other pines fail.

The opinion is prevalent that the source of seed has much to do with the quality of the plantings in this country. Much of the early stock came from France. A very fine strain of Scotch pine grows in the Baltic region of Russia, known as the Riga variety; it is one of excellent form and vigor. Most of the German stock also is superior to that of south Europe.

This series of three plots contains trees the seed sources of which are: (a) Central Germany, (b) Northern Finland, at an elevation of 2500 feet, and (c) Riga variety from Latvia.

The marked differences to date occur in the Finnish strain, which comes from the far north and at relatively high altitude. Its slower growth may result in better form than the others, although the development is much slower.

	Average diameter (inches)	**Average height** (feet)	**Year planted**
Subplot A Germany	5.9	42	1931
Subplot B Finland	4.1	27	1931
Subplot C Riga	5.5	41	1933

There is little difference between the German and Riga strains, but the former is three years older from seed. Four-year transplants were used to plant the German and Finnish plots and three-year seedlings for the Riga variety. These plots will be of greater value as the trees approach maturity.

Swamp white oak has made excellent growth.

SWAMP WHITE OAK

Plot 257

The swamp white oak is native to Ohio. Its habitat is swamp and lowlands. It tolerates heavy and poorly drained soils. Plantings made over the state indicate it has a surprisingly wide adaptation to soil and site. It transplants with more ease than the white oak to which it is closely related, and growth for the first 25 years at least is faster.

The habit of growth, as will be noted, is excellent. The straight trunks prune themselves naturally in forest plantings, thus producing clear lumber. The wood has most of the characteristics of the white oak, and ranks high among the timbers of commerce. It is fairly durable in contact with the soil and is frequently used for posts and in the whole should be given consideration for farm planting.

A good comparison may be had of this species with the other oaks in plots to the east along the road. The crop trees will average approximately six inches in diameter and the height 45 to 50 feet.

SWEET GUM

Plot 236

The sweet gum is native to the southeastern states. Its extreme north range extends into the border counties of southeastern Ohio. Relatively its growh is rapid, and in the south it attains large size, sometimes 140 feet in height and 3 to 4 feet in diameter. The wood in later years became a valuable timber of commerce. It is not durable in contact with the soil, but with preservative treatment will make satisfactory fence posts. The tree grows straight, has excellent timber form and is self-pruning to a considerable degree. It may be planted in pure stands or in mixture with red oak or white ash. The gum will do best in ravines, along stream courses, and on average fertile soils anywhere.

Sweet gum is a highly ornamental tree. Its regular pyramidal form, shade of green of the foilage and the star-shaped leaf is difficult to match for effect, whether for home, or park planting. The striking autumn colors of merged bronze yellow and red contributes charm to any landscape.

The maximum diameter of the crop trees will average approximately nine inches and the height 55 to 60 feet.

ARBORVITAE

Plot 86

The Arborvitae or northern white cedar of commerce is native to the north woods and Canada, where they grow to a height of 60 feet and two to three feet in diameter. There are three isolated stands in Ohio. One is located in a swamp area in Champaign county, another containing the largest trees on Cedar Creek, Adams county, and the third in Clifton Gorge on the Little Miami River in Green county. Its greatest utility has been for posts and poles, since the wood is durable in contact with the ground. It is also used for light boats and canoes. The Arborvitae has provided more posts, telegraph, and telephone poles for the northeastern U. S. than any other species.

Compared with the pines, the Arborvitae is a slower grower, but it can be used in small sizes for fence posts. The species requires moist soils; ravines, lowlands, or swales, where drainage is fair, are acceptable planting sites.

Arborvitae has long been used for ornamental plantings and there are several garden varieties in use for the purpose. It is adaptable for screen hedge and shelter belt uses, especially for those locations where considerable height or spread of crowns are not desirable. It is a useful tree for farm planting.

The trees in this plot will average approximately six inches in diameter and 34 feet high. This plot will produce at the rate of 2500 fence posts per acre.

RED PINE — NORWAY SPRUCE

Plot 214

The red pine, sometimes called Norway pine, is native to the northeastern region of the United States and eastern Canada, where it grows to the height of 100 feet and where it is associated with white pine, the maples, and birches. It grows with a straight columnar trunk and is a valued timber of commerce, especially for construction purposes.

The species adapts itself to dry sites and may be planted on old fields and eroded soils. It is one of the best trees for reclaiming gullied land. The leaf litter under red pine stands is the heaviest of any conifer employed in forest plantings in Ohio with the possible exception of the Austrian pine. The latter, however, is not as well adapted to dry exhausted soils.

The red pine may be classed as a rapid grower. In pure stands, however, the crown growth is so uniform among the trees that they tend to stagnate. The west end of this plot is a pure stand of red pine. The east end was planted in mixture with Norway spruce in equal amounts. The two species have reached approximately the same height, although at the present time the pine appears to be forging ahead. The diameter of the pine exceeds that of the spruce.

Of the ultimate crop trees in the plot, the red pine will measure 8 to 10.5 inches in diameter, and 50 to 56 feet in height. The spruce, 7 to 10 inches in diameter and in height 50 to 53 feet.

WHITE PINE — RED PINE

Plot 168

As we gain more knowledge of the behavior of the different species of trees in forest plantations, we must come to the conclusion that the safest policy is to mix species wherever possible. This appears to be particularly true of our most promising pines. Insects or disease may injure or destroy one species and not affect the other, which will form the ultimate forest. It is also good forestry practice to follow nature's method as far as we can in establishing forests.

In this case, the red pine tends to stagnate in pure stands for the reason that the crowns of the trees are uniform in height and spread and thus suppress each other. While thinning to a degree will solve this difficulty, a mixture with another species of approximately the same rate of growth will provide better development conditions for the red pine.

The red and white pine mixture approaches nearer to the ideal among the promising pines for Ohio planting.

The white pine is native to Ohio only in restricted localities. Both red and white pines are primarily north woods species, but the latter follows the Appalachian ridge as far south as the Carolinas.

It is common knowledge that white pine produces a high quality lumber used for many purposes. Here are two trees of high timber value suited for old fields, eroded land reclamation, windbreak, shelter belt uses, and for ornamentation. Both red and white pine are sometimes grown for Christmas trees.

The diameter of the red pine crop trees will average seven inches and the height 47 feet. The white pine will average eight inches in diameter and 53 feet in height.

TULIP TREE

Plot 203

The tulip tree, or yellow poplar of commerce, is undoubtedly one of Ohio's finest timber trees. It vies with the white oak for the number one place. It is found in greater or less degree in every county in Ohio. In the original forest, this tree attained a height of 150 to 180 feet, and the long clear columnar trunks sometimes measured eight feet in diameter. The tulip tree is rarely found in pure stands but prefers the association with other hardwoods in the native forest. In the forest, it prunes itself naturally and produces long boles free of limbs. As a timber of commerce, it is par excellence. The wood from a matured tree has slight tendency to warp, shrink, or twist. It is on a par with white pine for house siding, cupboards, and uses where warping cannot be tolerated.

For normal growth, the species requires moist, fertile soil. In the hill counties it does best on easterly or northerly exposures and particularly in ravines on such exposures where it is sheltered from winds and drying sun.

The tulip tree is intolerant of shade and will not thrive under the crowns of other trees. It may be planted in the native woods in openings a quarter acre or more in extent. Heavy, wet clays should be avoided in choosing a planting site.

The tulip tree may be planted in pure stands, but if mixed with red oak or possibly white pine, a better ground cover of leaf litter will result. The black locust and tulip mix well, largely to the benefit of the locust, but such mixtures do not maintain good ground litter. The tulip should be planted ahead of the locust.

In planting tulip, it is better to space the trees 8 to 10 feet apart, and the same when asociates in mixtures are used. Use 2-year seedlings or 2-year transplants for planting stock.

The crop trees in this plot average about 65 feet in height and 8 to 9 inches in diameter. An under story of Norway spruce will be noted in the west end of the plot. The spruce was planted in 1913 as an experiment in the maintenance of good site conditions. The spruce is more tolerant of shade than the tulip tree.

The tulip tree may well be considered in any reforestation project.

EXPERIMENTAL WOODS MANAGED ON A 5-YEAR CUTTING CYCLE

(Area — 7 acres)

This native hardwood forest, which has not been grazed by livestock for at least 40 years, is typical of many farm woods in Ohio. A stand of this type with its wide range of tree sizes is called all or mixed aged and is ideally suited to timber cropping by selective cutting. As the larger trees become mature and are harvested, there are smaller ones to fill the gap and grow for the next harvest. This woods is somewhat understocked in that there is only a little over 4,000 bd. ft. per acre.

Experimental work in this woods is concerned with instituting a selective harvesting program where volume of timber growth is removed in the form of mature trees every five years. A cut of 2500 bd. ft. was removed this last year (1948). The next few cuts will be small to allow growth to build up the stocking to a higher level.

Since timber growth is the key to selective cutting, main emphasis in the studies will be not only to accurately determine the growth but also how to cut the stand so as to obtain maximum growth. As mature trees are harvested, some smaller trees will be cut for thinning purposes. Undesirable species, such as ironwood, will be removed and also poor quality trees which will never make good timber. These trees make firewood or good fence posts when treated.

The major species here are black cherry, red maple, beech, and elm. Important associates are red, white, and black oak, walnut, and hickory.

There are several of these experimental forests established throughout the state for the purpose of obtaining data on the selective timber cropping of farm woodlands, their rate of growth, the yield of forest products, and the economics of farm forestry.

A group of students making observations in the Taxus plot.

Outstanding Ornamentals

The Secrest Arboretum must be included among the outstanding collections of coniferous evergreens in this country. In spite of the fact that several of the outstanding species of pines, firs, and spruces have been grown in forest plots under conditions not conducive to perfect individual plant development, many fine specimens can be seen in the arboretum. Included in the arboretum are collections of Yews, Junipers, Arborvitaes, Chamaecyparis, pines, spruces, firs, hemlocks, and many good deciduous plants.

THE YEWS — TAXUS

Plot 310

The Yews are the most satisfactory small evergreens for landscape planting in Ohio. They vary greatly in habit of growth, as the following list will show, possess excellent dark green foliage, and are adaptable for planting in a wide range of soils and under either sun or shade conditions. They do need good soil drainage.

The collection of Yews in the Secrest Arboretum is the newest group of evergreens to be added. This collection, sponsored by the Department of Horticulture and the Ohio Nurserymen's Association, was started in 1942. The project was undertaken with the purposes in mind: (1) establishing as complete a collection of Yews as possible, (2) to determine the correct nomenclature of the many varieties and clons, and (3) to determine the growth habits and hardiness, and the adaptability of the Yews to Ohio conditions.

The Taxus collection now comprises about 450 plants of 92 different species, varieties, and clons. Plants of some 25 other types are being grown on and will be added to the collection when they have reached sufficient size. Most of the plants in the permanent collection have been donated by nurserymen in Ohio and nearby states.

Among the best of the Yews for landscape planting are the following:

THE BEST IN TAXUS

(1) **Low Types, 1-4 ft.**
- (a) **Spreading with Drooping Branchlets**
  - Taxus baccata repandens—Spreading English Yew
- (b) **Dwarf, Compact, Rounded or Globose types**
  - Taxus cuspidata densa—Cushion Japanese Yew
  - Taxus media wardi—Ward Anglojap Yew
- (c) **Dwarf, Compact and Flat-Top type**
  - Taxus cuspidata nana—Dwarf Japanese Yew

(2) **Small Types, 4-6 ft.**
- (a) **Slow Growing, Bushy, Upright Spreading Types**
  - Taxus cuspidata aurescens—Goldtip Japanese Yew
  - Taxus cuspidata intermedia—Intermediate Japanese Yew
  - Taxus media browni—Brown Anglojap Yew
  - Taxus media kelseyi—Kelsey Anglojap Yew
- (b) **More Rapid Growing, Broad, Bushy, Upright Spreading Trees**
  - Taxus cuspidata expansa—Spreading Japanese Yew
  - Taxus media andersoni—Anderson Anglojap Yew
- (c) **Narrow, Upright Types**
  - Taxus cuspidata columnaris—Column Japanese Yew (Adams)
  - Taxus media hicksi—Hicks Anglojap Yew

(3) **Medium Types, 6-10 ft.**
- (a) **Broad, Pyramidal Types**
  - Taxus cuspidata capitata—Upright Japanese Yew
  - Taxus media hatfieldi—Hatfield Yew

(4) **Large Types, 10-25 ft.**
- Taxus cuspidata capitata—Upright Japanese Yew

THE JUNIPERS — JUNIPERUS

Plots 288-289

The Junipers are another outstanding group of ornamental evergreens. They vary in habit of growth from low, creeping, ground cover forms, through the wide spreading, bushy types, to the narrow upright forms. They are hardy, adaptable to a wide range of soil conditions, but should be planted in sunny exposures.

Outstanding among the Junipers in the Secrest Arboretum are:

Juniperus chinesis columnaris—Columnar Chinese Juniper
Narrow columnar form with short ascending branches and needle-like leaves. Both green and blue foliage forms are available.

Juniperus chinensis keteleeri—Keteleer Juniper
Compact pyramidal form with dark green foliage. One of the best upright Junipers.

Juniperus chinensis pfitzeriana—Pfitzer Juniper
Usually not exceeding six feet. A dense shrub with wide spreading branches and nodding branchlets. Blue-green foliage. Useful in the foundation planting, as a specimen, and for bed and for the rock garden planting. One of our best narrowleaf evergreens.

Ornamental spruces

Juniperus chinensis sargenti—Sargent Juniper

A very desirable low prostrate form rarely exceeding one foot. Forms a dense mat with the branches slightly ascending at the tips. Does well in poor soil. Useful in the rock garden, for covering steep banks, as a foundation plant, and for beds.

Juniperus horizontalis—Creeping Juniper

Nova Scotia to British Columbia, south to Massachusetts, New York, Minnesota, and Montana. Low procumbent shrub with long trailing branches, rarely exceeding two feet. Valuable as a ground cover for sandy and rocky soil in exposed situations. A good rock garden plant.

The following three varieties of Juniperus horizontalis are among the best:

Bar Harbor—One of the best of the creeping forms, forming a complete cover of gray-green foliage becoming slaty-purple in the fall.

douglasi—The Waukegan Juniper, similar in habit to the type plant but its foliage turns deep purple in the autumn.

plumosa—A native of the sea coast of Maine. It may be slightly more upright in habit of growth than the type. It is perhaps the most charming low juniper with its blue-green summer foliage, which turns purple in the fall and lasts throughout the winer. This variety is useful in the foundation planting, in beds, and in the rock garden.

Juniperus procumbens—Trailing Juniper

Japan. Low, spreading plant, not exceeding two feet. Somewhat tender. Useful as ground cover and as a rock garden subject.

Juniperus sabina—Savin Juniper

Europe and Asia. Height six feet. Low, spreading shrub with dark green foliage. Does well on limestone soil. May be used as a foundation plant, as a specimen, for beds or for the rock garden. Several varieties are common.

Juniperus virginiana—Redcedar

United States east of Rocky Mountains; height, 50 feet. Columnar in outline with upright or spreading branches; green to yellow-green foliage. One of the most hardy of the evergreens but is apt to be open when old. Should be given suny exposure and well drained soil. Best used for screen planting, occasionally as a foundation plant.

Many varieties of Juniperus virginiana are common. The best are:

canaerti—A compact form with dark-green foliage.

globosa—A compact globose form with bright-green foliage.

pyramidalis—Dense columnar form.

schotti—A small columnar form with bright-green foliage.

tripartita—A dwarf, spreading form, 4 to 6 feet, densely branched and with glaucous foliage.

THE ARBORVITAES — Thuja

Plot 281

An excellent collection of Arborvitaes is found in the Secrest Arboretum. The Arborvitaes vary greatly in habit of growth and foliage color. They do best in sunny situations and under moist soil conditions. Some are upright, emphatic in habit, while others are pyramidal, spreading or globe-shaped. The Arborvitaes as a group are not as adaptable to landscape planting in Ohio as the Yews and Junipers, but in the cooler parts of the state they can be used in foundation plantings, for borders, screens, and hedges.

The following are among the best of the Arborvitaes:

Thuja occidentalis—American Arborvitae

Nova Scotia to Manitoba, south to North Carolina, Tennessee, and Illinois; height, 60 feet. Plant with short horizontal branches, ascending at the end and forming a narrow, pyramidal, compact head; will do well under adverse conditions but becomes rather unattractive during the winter.

Among the best of the varieties of Thuja occidentalis, mostly 4 to 10 feet, are:

douglasi pyramidalis—Douglas Pyramidal Arborvitae. A dense pyramidal form reaching 20 feet. One of best for accents and screens.

elegantissima—A broad pyramidal form. Foliage heavy and bronze tipped. Very good.

hoveyi—Hovey Arborvitae. Dwarf, dense, globose form, bright green foliage.

Little Gem—Little Gem Arborvitae. A very dwaorf dark green form growing broader than high.

rosenthali—Rosenthal Arborvitae. Columnar form with dark green foliage.

wareana—Ware Arborvitae. Dense pyramidal type with bluish-green foliage not fading during the winter. One of the best for hedges.

woodwardi—Dense globose form with deep green foliage. Also retains its color during the winter. Possibly the best of the globose forms.

Thuja orientalis—Oriental Arborvitae

North China and Korea. Height 45 feet. Usually not attaining this height in cultivation. Bushy plant with spreading and ascending branches. Foliage appearing in a vertical spray. Not as satisfactory for mid-western conditions as T. occidentalis.

A few of the best varieties of T. orientalis are

aurea nana—Berckmanns Golden Arborvitae. A small, compact form with yellow foliage, more tender than the type.

elegantissima—Yellow Column Arborvitae. Columnar form with yellow foliage which becomes greenish with age.

pyramidalis—Oriental Pyramidal Arborvitae. Pyramidal form with bright green foliage, supposedly hardier than the species.

Thuja plicata—Giant Arborvitae

Montana and West Coast. Height, 75 feet. Much smaller as grown in cultivation. Narrow pyramidal tree, with short horizontal branches. Foliage bright green, glossy or bronzy above, dark green beneath. Its outstanding feature is that it retains its green color during the winter. May be used as screens or hedges.

The variety *atrovirens* has dark green leaves, golden at the tips. The species and this variety are among the best of all the Arborvitaes.

Thuja standishi—Standish Arborvitae

Japan. Height, 40 feet. A broad pyramidal tree with spreading branches. Foliage differs from that of other species, usually thinner and more open.

THE FALSECYPRESS — CHAMAECYPARIS

Plot 239

Some of the varieties of the Sawara Falsecypress with soft, spreading leaves have, erroneously, been given the name Retinospora. The species

Variety Plot of Ornamental Arborvitae.

and varieties of the Falsecypress vary in size, from good-sized trees to those that are not over three feet in height. They do best in the cooler parts of the State, in sunny situations and in good, moist soil.

Among a few of the outstanding types are:

Chamaecyparis pisifera—Sawara Falsecypress

Japan. Height, 60 feet. A relatively small but fast growing species with horizontal branches. Narrow pyramidal, loosely branched tree; tends to become thin and open with age. There are many varieties in the trade that vary much in form and color of foliage. Variety *C. p. filifera* is the best. It is smaller and slower in growth, with drooping branches, and may be used as a foundation plant or for borders.

Chamaecyparis nootkatensis—Nootka Falsecypress

Northwest coast. Height, 75 feet. Handsome tree of pyramidal shape with dark green, lustrous foliage. The branchlets have more or less pendulous tips. Use as a specimen plant or for mass planting. Plant is not fully hardy.

Chamaecyparis obtusa—Hinoki Falsecypress

Japan. Height, 60 feet. Narrow pyramidal tree that is light and graceful in its effect. Best in fertile soil and cool situations. Use as a specimen or for mass planting.

Among the best varieties of the Hinoki Falsecypress are *C. obtusa compacta*, a low, rounded form of slow growth and dark green foliage, *crippsi*, a form with pale yellow foliage; *gracilis*, a small pyramidal form with dark-green leaves; and *nana*, a low form of slow growth.

THE SPRUCES — PICEA

Plots 71-79, 210, 239, 265, 56-58

The Secrest Arboretum has most of the common spruces and many of the uncommon species and varieties.

Most of the spruces are medium-to-large trees at maturity. They should not be used in foundation plantings but several of them do make good specimen plants, screens and windbreaks. The spruces do best in a good soil that is retentive of moisture.

Among the outstanding spruces in the collection are:

Picea omorika—Serbian Spruce

Southeastern Europe. Height, 75 feet. A narrow pyramidal tree with short, spreading and ascending branches. Foliage dark green and shining with white lines

Dunkeld Larch (plot 307)
Thinned in 1948.

below. Rapid grower. One of the best spruces for the midwestern states. Should be used as a specimen plant, perhaps for screens. The Secrest Arboretum contains a group planted in 1918.

Picea orientalis—Oriental Spruce

Caucasus, Asia Minor. Height, 60 feet. A slow growing pyramidal tree with spreading and ascending branches. Leaves are short, blunt, dark green, crowded and more or less appressed to the branches. It retains its lower branches better than the other spruces with the possible exception of the Serbian Spruce. Because of its slow growth it is adapted to use on small properties. Another outstanding spruce for Ohio.

Picea pungens—Colorado Spruce

Wyoming to Colorado, Utah, and New Mexico. Height, 60 feet. A broad pyramidal tree with stout, horizontal branches. Foliage bluish-green to silvery-white. All varieties are useful as specimens when set against a proper background of green foliage. Three varieties are common:

glauca—A form with blue foliage.
kosteri—A form with bluish-white foliage.
moerheimi—A form with longer, deeper blue leaves, and more compact than Koster. The best of the blue spruces.

THE PINES — PINUS

Plots 81, 89-95, 130-135, 155, 188, 210, 221, 225

Some 25 different pines are found in the arboretum. Most of the species become large trees at maturity. Exceptions are the Mugho, Swiss Stone, and Lacebark Pines. With few exceptions the pines are hardy, adaptable to a wide range of soils and are useful as specimen, screen, and windbreak plants.

The following are considered the best of the pines for Ohio:

Pinus cembra—Swiss Stone Pine

Alps. Height, 50 feet. A slow growing, symmetrical, dense, narrow pyramidal tree. Needles five in a bundle. Flourishes on thin, stony soil in exposed situations. Useful as a specimen plant, especially on small properties.

Pinus koraiensis—Korean Pine

Japan, Korea. Handsome pyramidal tree to 65 feet, with dark-green needles, five in a bundle. This slow growing, compact tree makes a good specimen.

Pinus montana—Swiss Mountain Pine

Mountains of Central and Southern Europe. Height, 30 feet. A plant of variable habit of growth. Usually a low shrub with ascending branches. Needles two in a bundle. Useful as specimens, screens, and for planting on rocky slopes.

The variety *P. montana mughus*, Mugho Pine, is more commonly used; a dwarf, compact type with many branches. Height, 3 to 4 feet. May be used in the foundation planting.

Pinus nigra—Austrian Pine

Southeastern Europe. Height, 80 feet. A broad pyramidal tree with dark-green rigid needles, two in a bundle. This form will stand more moist soil than most pines. Adapted to wide range of soil conditions. A coarse, strong, rapid grower. Use this plant for screens and windbreaks.

Pinus peuce—Macedonian Pine

Balkan Mountains. A narrow pyramidal tree of slow growth and light to bluish-green foliage. Five needles to a bundle. A good specimen tree.

Pinus resinosa—Red Pine

Newfoundland to Manitoba, south to Pennsylvania, to Michigan, Wisconsin, and Minnesota. Height, 70 feet. A broad pyramidal tree with stout spreading branches. Rapid growing and one of the best of the pines. Needles two in a bundle and dark green. Useful as screens, windbreaks, and specimen plants.

Pinus strobus—White Pine

Newfoundland to Manitoba, south to Georgia, Illinois, and Iowa. Height, 70 feet. A symmetrical pyramidal tree with horizontal branches in regular whorls. With age the head becomes broad and open and very picturesque. Leaves five in a cluster, soft and bluish-green. This pine will stand pruning to a 4 to 5 foot hedge or higher screen. It will do best in deep rich soil but will stand light sandy or heavy clay soil. Besides screens and hedges it may be used as windbreaks and specimen plants.

Pinus sylvestris—Scotch Pine

Europe to Western Asia. Height, 50-60 feet. A pyramidal tree with spreading, somewhat pendulous branches, often becoming round-topped and picturesque with age. The needles are twisted, bluish-green and two in a cluster. More resistant of dirt and impure air than most pines; because of this it stands congested city conditions fairly well. Endures light and sandy soil and exposed situations. Useful as specimen plants, screens, and windbreaks.

THE FIRS — ABIES

Plots 14, 25, 96-126, 210, 265, 290, 312

More than 15 species of firs are growing in the arboretum. Most of them are medium to large trees at maturity. As a group they are more specific in their requirements of soil and environment conditions than are the pines and spruces. They do best in a cool atmosphere, and in a good soil, retentive of moisture. The firs are used mainly as specimen plants.

While not a true fir, the Douglas-fir, *Pseudotsuga taxifolia,* is often classified with the firs. It is a native of the western states. It attains a height of 100 feet or more in its native habitat, becoming a large pyramidal tree with horizontal branches and drooping branchlets. It is adaptable to city conditions and can be used in ornamental plantings as specimens, screens, windbreaks, and hedges.

A few of the outstanding firs are:

Abies concolor—White Fir

Southern Rockies. Height, 80 feet. Moderately rapid growth, conical shape; branches hold to the ground. Adapted to wide variation of soil. One of the most beautiful and most satisfactory firs for cultivation in eastern and midwestern United States.

Abies nordmanniana—Nordmann Fir

Caucasus, Asia Minor, Greece. Height, 80 feet. Narrow pyramidal tree with dark green, shiny foliage. One of the best of the first for landscape planting in Ohio.

Abies veitchi—Veitch Fir

Central Japan. Height, 50-60 feet. Broad pyramidal habit of growth. Desirable species, particularly handsome when young. Foliage dark green above, silvery beneath.

THE HEMLOCKS — TSUGA

Three species of hemlocks are found in the Arboretum. The Canada and Carolina hemlocks are large trees at maturity but the Japanese hemlock becomes more of a bushy specimen. The Canadian hemlock, *Tsuga canadensis,* is a handsome tree to 70 feet in height, with graceful, sweeping branches and shining, dark green foliage. It does well in a wide range of soil conditions but prefers a moderately acid soil. It does well in sun or shade and stands pruning well. It can be used as specimen plants, screens, or hedges. The other two species are not as satisfactory under Ohio conditions.

DECIDUOUS PLANTS

Outstanding among the deciduous trees in the arboretum are the Maples, Oaks, Birches, Lindens, Hickories, Beech, Sweetgum, and Larch. A good collection of hybrid lilacs is located near the fruit storage cellar.

GUIDE TO THE SECREST ARBORETUM

Plot No.	Common Name	Scientific Name
1	White pine	*Pinus strobus L.*
2	Bald cypress	*Taxodium distichum Rich.*
3	Hemlock	*Tsuga canadensis Carr.*
4	White pine	*Pinus strobus L.*
5	Norway spruce	*Picea abies Karst.*
6	White pine	*Pinus strobus L.*
	Norway spruce	*Picea abies Karst.*
8	White pine	*Pinus strobus L.*
	Arborvitae	*Thuja occidentalis L.*
9	Basswood	*Tilia glabra Vent.*
	Hemlock (underplanting)	*Tsuga canadensis Carr.*
10	European linden	*Tilia vulgaris Hayne.*
11	White oak	*Quercus alba L.*
12	Black oak	*Quercus velutina Lam.*
13	Japanese yew	*Taxus cuspidata Sieb. & Zucc.*
14	Silver fir	*Abies alba Mill.*
17	Arborvitae	*Thuja occidentalis L.*
18	Western yellow pine	*Pinus ponderosa Laws.*
21	Hemlock	*Tsuga canadensis Carr.*
22	Scotch pine	*Pinus sylvestris L.*
23	Japanese larch	*Larix kaempferi Carg.*
24	Hemlock	*Tsuga canadensis Carr.*
25	Fraser fir	*Abies fraseri Poir.*
26	Red oak	*Quercus borealis maxima Ashe.*
27	Asiatic chestnut (USDA)	*Castanea crenata; C. mollissima.*
28	White pine	*Pinus strobus L.*
29	Black walnut	*Juglans nigra L.*
30	Blue spruce	*Picea pungens Engelm.*
32	Bald cypress	*Taxodium distichum Rich.*
34	Silver fir	*Abies alba Mill.*

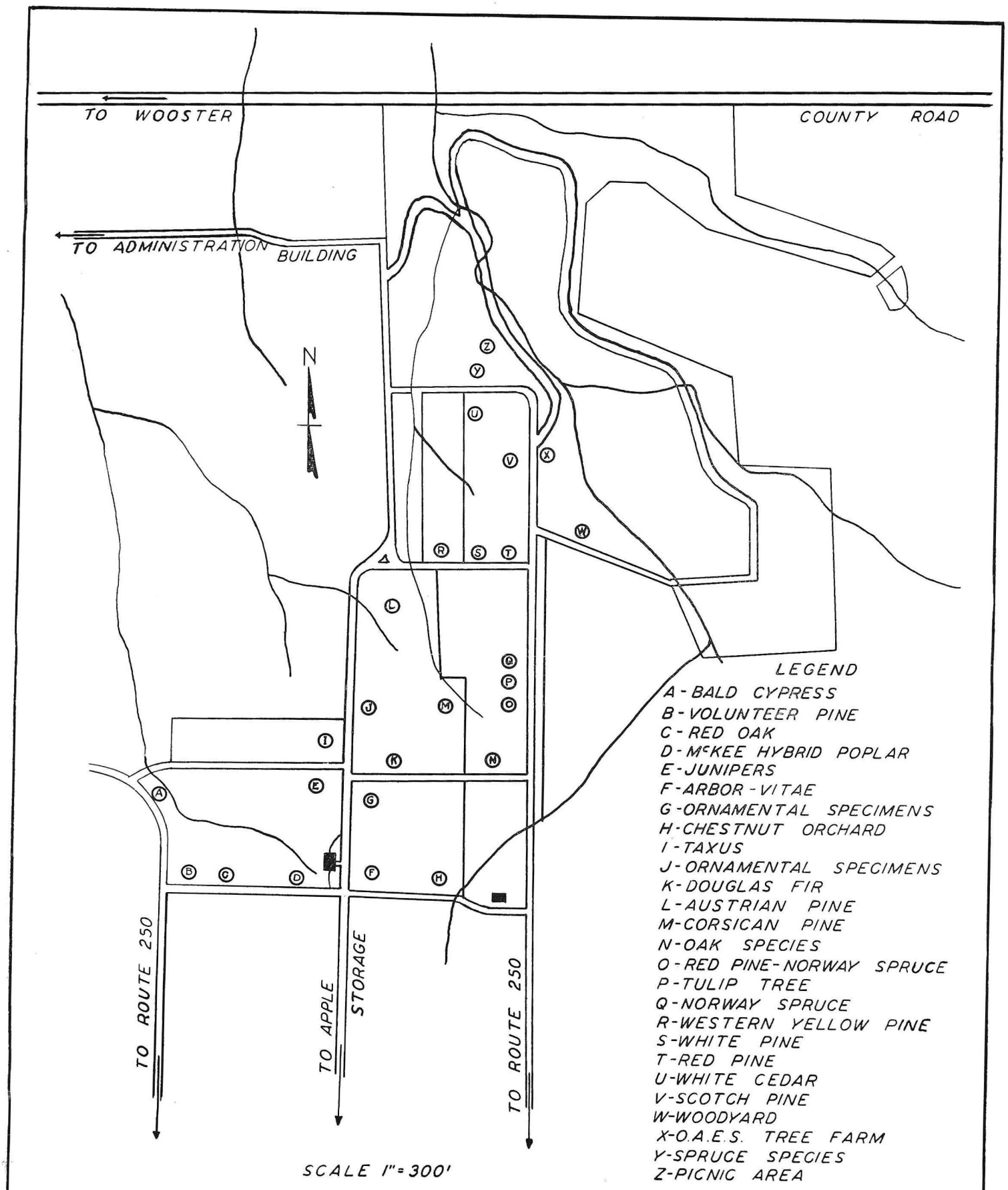
Plot No.	Common Name	Scientific Name
35	Tulip tree	*Liriodendron tulipifera L.*
36	Pitch pine	*Pinus rigida Mill.*
39	Norway spruce	*Picea abies Karst.*
41	European beech	*Fagus sylvatica L.*
42	Hemlock	*Tsuga canadensis Carr.*
44	Canada yew	*Taxus canadensis Marsh.*
45	Japanese yew	*Taxus cuspidata Sieb. & Zucc.*
46	Mountain laurel	*Kalmia latifolia L.*
47	Mountain pine	*Pinus mugo Turra.*
48	Jack pine	*Pinus banksiana Lamb.*
	Scotch pine	*Pinus sylvestris L.*
	Mountain pine (dwarf)	*Pinus mugo Turra.*
49	Tulip tree	*Liriodendron tulipifera L.*
50	Redbud	*Cercis canadensis L.*
51	European larch	*Larix decidua Mill.*
52	Red pine	*Pinus resinosa Ait.*
53	American beech	*Fagus grandifolia Ehrh.*
54	Douglas fir	*Pseudotsuga taxifolia Britt.*
55	Fraser fir	*Abies fraseri Poir.*
	Hemlock	*Tsuga canadensis Carr.*
	Bald cypress	*Taxodium distichum Rich.*
56	Alberta spruce	*Picea glauca albertiana Sarg.*
57	Koyami spruce	*Picea koyami shiras.*
58	Alcock spruce	*Picea bicolor Mayr.*
59	Hemlock	*Tsuga canadensis Carr.*
60	Japanese yew	*Taxus cuspidata Sieb. & Zucc.*
61	Common juniper	*Juniperus communis L.*
62	Japanese yew	*Taxus cuspidata Sieb. & Zucc.*
63	Fraser fir	*Abies Fraseri Poir.*
64	Scotch pine	*Pinus sylvestris L.*
65	Norway spruce	*Picea abies Karst.*
66	White pine	*Pinus strobus L.*
69	Norway poplar	*Populus canadensis regenerata Rehder.*
	Cottonwood	*Populus balsamifera virginiana Sarg.*
	Hemlock (underplanting)	*Tsuga canadensis Carr.*
70	Red pine (original stand broken by ice replanted 1947	*Pinus resinosa Ait.*
71	Serbian spruce	*Picea omorika Purkyne.*
72	Tigertail spruce	*Picea polita Carr.*
73	Oriental spruce	*Picea orientalis Carr.*
74	Red spruce	*Picea rubra Link.*
75	Black spruce	*Picea mariana B.S.P.*
76	Colorado spruce (blue and green)	*Picea pungens Engelm.*
77	Norway spruce	*Picea abies Karst.*
78	Engelmann spruce	*Picea engelmanni Engelm.*
79	White spruce	*Picea glauca Voss.*
80	Austrian pine	*Pinus nigra Arnold.*
81	Mixed pines—	
	Limper pine	*Pinus flexilis James.*
	White pine	*Pinus strobus L.*
	Red pine	*Pinus resinosa Ait.*
	Pitch pine	*Pinus rigida Mill.*
	Scotch pine—	*Pinus sylvestris L.*
	Jack pine	*Pinus banksiana Lamb.*
	Ponderosa pine	*Pinus ponderosa Dougl.*
	Corsican pine	*Pinus nigra calibrica Schneid.*
83	Douglas fir	*Pseudotsuga taxifolia Britt.*
84	White fir	*Abies concolor Lindl. & Gord.*
86	Arborvitae	*Thuja occidentalis L.*

Plot No.	Common Name	Scientific Name
87	Dahurian larch	*Larix dahurica Principis—Ruprechtii Rehd. & Wils.*
88	Oriental arborvitae	*Thuja orientalis L.*
89	Rocky mountain white pine	*Pinus flexilis James.*
90	Jeffrey pine	*Pinus jeffreyi Vasey.*
91	Bhotan pine	*Pinus excelsa Wall.*
92	Lodge-pole pine	*Pinus contorta latifolia S. Watts.*
93	Scotch pine	*Pinus sylvestris L.*
94	White pine	*Pinus strobus L.*
95	White pine	*Pinus strobus L.*
96	Silver fir	*Abies alba Mill.*
97	Balsam fir	*Abies balsamea Mill.*
104	Fraser fir	*Abies fraseri Poir.*
105	Parnassus fir	*Abies cephalonica apollinis Beiss.*
109	Korean pine	*Pinus koraiensis Sieb. & Zucc.*
110	Macedonian pine	*Pinus peuce Griseb.*
118	Saghalin r	*Abies sachalinensis Mast.*
119	Cilician fir	*Abies cilicica Carr.*
125	Nordmann fir	*Abies Nordmanniana Spach.*
126	Greek fir	*Abies cephalonica Loud.*
130	Japanese black pine	*Pinus thunbergii Parl.*
131	Japanese red pine	*Pinus densiflora Sieb. & Zucc.*
132	Loblolly Pine	*Pinus taeda L.*
133	Jack pine	*Pinus banksiana Lamb.*
134	Shortleaf pine	*Pinus echinata Mill.*
135	Austrian pine	*Pinus nigra Arnold.*
	White pine	*Pinus strobus L.*
136	English elm	*Ulmus procera Salisb.*
137	White elm	*Ulmus americana L.*
138	Slippery elm	*Ulmus fulva Michx.*
139	Nikko fir	*Abies homolepis Sieb. & Zucc.*
140	Veitch fir	*Abies veitchi Lindl.*
145	White pine	*Pinus strobus L.*
147	Needle fir	*Abies holophylla*
148	Western yellow pine	*Pinus ponderosa Dougl.*
149	Yellow pine	*Pinus strobus L.*
150	Red pine	*Pinus resinosa Ait.*
151	Jack pine	*Pinus banksiana Lamb.*
	Pitch pine—1 tree	*Pinus rigida Mill.*
152	Jack pine	*Pinus banksiana Lam.*
	Scotch pine	*Pinus sylvestris L.*
153	Western yellow pine	*Pinus ponderosa Dougl.*
	Red pine	*Pinus resinosa Ait.*
154	Yestern yellow pine	*Pinus ponderosa Dougl.*
155	Table mountain pine	*Pinus pungens Lam.*
156	Big shellbark	*Carya laciniosa Schn.*
157	Hemlock	*Tsuga canadensis Carr.*
158	Nut pine	*Pinus cembroides edulis Voss.*
159	Pecan	*Carya pecan Asch. & Gr.*
160	White pine	*Pinus strobus L.*
	Douglas fir	*Pseudotsuga taxifolia Britt.*
161	Scotch pine	*Pinus sylvestris rigensis Loud.*
162	Scrub pine	*Pinus contorta Loud.*
	Lodge-pole pine—1 tree	*Pinus contorta latifolia S. Watts.*
163	Norway spruce	*Picea abies Karst.*
	Douglas fir	*Pseudotsuga taxifolia Britt.*
164	Pignut	*Carya glabra Sweet.*
165	Red pine	*Pinus resinosa Ait.*
	Hemlock	*Tsuga canadensis Carr.*
166	Western yellow pine	*Pinus ponderosa Dougl.*
168	Red pine	*Pinus resinosa Ait.*
	White pine	*Pinus strobus L.*

Plot No.	Common Name	Scientific Name
170	European larch	*Larix decidua Mill.*
	Norway spruce	*Picea abies Karst.*
171	Sugar maple	*Acer saccharum Marsh.*
172	Red maple	*Acer rubrum L.*
173	Silver maple	*Acer saccharinum L.*
174	Sycamore maple	*Acer pseudoplatanus L.*
175	Oregon maple	*Acer macrophyllum Persh.*
176	Box elder	*Acer negundo L.*
177	Black maple	*Acer nigrum Michx.*
178	Sugar maple	*Acer saccharum Marsh.*
179	Red oak	*Quercus borealis maxima Ashe.*
	Sugar maple	*Acer saccharum Marsh.*
180	White pine	*Pinus strobus L.*
181	Shellbark hickory	*Carya ovata K. Koch.*
	Hemlock (underplanting)	*Tsuga canadensis Carr.*
182	Black walnut	*Juglans nigra L.*
183	Butternut	*Juglans cinerea L.*
184	Butternut	*Carya cordiformis K. Kach.*
185	Burr oak	*Quercus macrocarpa Michx.*
	Arborvitae	*Thuja occidentalis L.*
186	Wild black cherry	*Prunus serotina Ehrh.*
	Hemlock (underplanting)	*Tsuga canadensis Carr.*
187	Western yellow pine	*Pinus ponderosa Dougl.*
	Norway maple (underplanting)	*Acer platanoides L.*
	Norway spruce (underplanting)	*Picea abies Karst.*
188	Jack pine	*Pinus banksiana Lamb.*
189	Douglas fir	*Pseudotsuga taxifolia Britt.*
190	Rock elm	*Umus racemosa Thomas.*
191	Red birch	*Betula nigra L.*
192	Yellow birch	*Betula lutea Michtx.*
193	Norway maple	*Acer platanoides L.*
194	European birch	*Betula pendula Roth.*
195	Tree-of-heaven	*Ailanthus altissima Swingle.*
196	Austrian pine	*Pinus nigra Arnold.*
197	Red oak	*Quercus borealis maxima Ashe.*
	American beech (underplanting)	*Fagus grandifolia Ehrh.*
198	Black walnut	*Juglans nigra L.*
	Black maple	*Acer nigrum Michx.*
199	Basswood	*Tilia glabra Vent.*
200	Norway spruce	*Picea abies Karst.*
201	White oak	*Quercus alba L.*
202	European beech	*Fagus sylvatica L.*
	American beech	*Fagus grandifolia Ehrh.*
203	Tulip tree	*Liriodendron tulipifera L.*
	Norway spruce (underplanting)	*Picea abies Karst.*
204	White pine	*Pinus strobus L.*
	European larch	*Larix decidua Mill.*
205	Sweet gum	*Liquidambar styraciflua L.*
	Sugar maple	*Acer saccharum Marsh.*
	Tulip poplar	*Liriodendron tulipifera L.*
206	White ash	*Fraxinus americana L.*
207	Red cedar	*Juniperus virginiana L.*
208	Paper birch	*Betula papyrifera Marsh.*
	Sweet birch	*Betula lenta L.*
	Rowan tree (European mountain ash)	*Sorbus aucuparia L.*
	Sweet gum	*Liquidambar styraciflua L.*
209	Ginkgo	*Ginkgo biloba L.*
210	Mixed ornamental conifers	*Pinus strobus L.*
211	White pine	
	Hemlock (underplanting)	*Tsuga canadensis Carr.*
212	Corsican pine	*Pinus nigra calabrica Schneid.*

Plot No.	Common Name	Scientific Name
213	Red pine	*Pinus resinosa L.*
	Arborvitae	*Thuja occidentalis L.*
214	Red pine	*Pinus resinosa L.*
	Norway spruce	*Picea abies Karst.*
215	Pond cypress	*Taxodium distichum imbricarium Sarg.*
216	Siberian larch	*Larix sibirica Ledeb.*
221	Mixed pines—	
	Mugho pine	*Pinus mugo Mughus.*
	Japanese black pine	*Pinus thunbergii Parl.*
	Shortleaf pine	*Pinus echinata Mill.*
	Scotch pine	*Pinus sylvestris L.*
	Pitch pine	*Pinus rigida Mill.*
	Western yellow pine	*Pinus ponderosa Dougl.*
	White pine	*Pinus strobus L.*
222	European larch	*Larix decidua Mill.*
223	Swamp white oak	*Quercus bicolor Willd.*
225	Scotch pine	*Pinus sylvestris L.*
	White pine	*Pinus strobus L.*
	Austrian pine	*Pinus nigra Arnold.*
	Western yellow pine	*Pinus ponderosa Dougl.*
	Corsican pine	*Pinus nigra calabrica Schneid.*
226	Black locust (Higbee)	*Robinia pseudoacacia L.*
230	Tamarack	*Larix laricina K. Koch.*
231	Japanese larch	*Larix kaempferi Sarg.*
232	Basket oak	*Quercus prinus L.*
233	Red oak	*Quercus borealis maxima Ashe.*
	Black locust	*Robinia pseudoacacia L.*
235	Shipmast locust	*Robinia pseudoacacia L. var. rectissima Raber.*
236	Sweet gum	*Liquidambar styraciflua L.*
237	Hackberry	*Celtis occidentalis L.*
238	Oriental plane	*Platanus orientalis L.*
239	Mixed ornamental conifers	
240	Douglas fir	*Pseudotsuga taxifolia Britt.*
242	Chinese catalpa	*Catalpa ovata Don.*
243	Southern catalpa	*Cataipa bignonioides Walt.*
245	Burr oak	*Quercus macrocarpa Michx.*
246	Pin oak	*Quercus palustris Muench.*
247	English oak	*Quercus robur L.*
248	Chestnut oak	*Quercus montana L.*
249	Post oak	*Quercus stellata Wang.*
250	Bear oak	*Quercus ilicifolia Wang.*
251	European larch	*Larix decidua Mill.*
252	Black oak	*Quercus velutina Lam.*
253	Scarlet oak	*Quercus coccinea Muench.*
254	Red Oak	*Quercus borealis maxima Ashe.*
255	White oak	*Quercus alba L.*
257	Swamp white oak	*Quercus bicolor Willd.*
258	Shingle oak	*Quercus imbricaria Michx.*
259	Hybrid catalpa	*Catalpa hybrida Spaeth.*
260	Northern catalpa	*Catalpa speciosa Warder.*
261	Yellow oak	*Quercus muehlenbergii Engelm.*
262	Schneck's oak	*Quercus schneckii Britton.*
263	Blackjack oak	*Quercus marilandica Muench.*
264	Willow oak	*Quercus phellos L.*
265	Mixed ornamental conifers	
266	Red pine	*Pinus resinosa Ait.*
	White ash	*Fraxinus americana L.*
	Osage orange	*Maclura pomifera Schn.*
	Black walnut	*Juglans nigra L.*
	Tulip tree	*Liriodendron tulipifera L.*
	Bald cypress	*Taxodium distichum (L) Richard.*
	Red oak	*Quercus borealis maxima Ashe.*
	White pine	*Pinus strobus L.*

Plot No.	Common Name	Scientific Name
267	Overcup oak	*Quercus lyrata Walt.*
268	Sassafras	*Sassafras officinale Nees & Eberm.*
269	Osage orange	*Maclura pomifera Schn.*
270	Red mulberry	*Morus rubra L.*
271	White mulberry	*Morus alba L.*
	Silver bell	*Halesia monticola Sarg.*
272	Sweet buckeye	*Aesculus octandra Marsh.*
273	Ohio buckeye	*Aesculus glabra Willd.*
274	Horse chestnut	*Aesculus hippocastanum L.*
175	Honeylocust	*Gleditsia trianthos L.*
	Thornles honeylocust	*Gleditsia trianthos inermis Pursh.*
278	Cucumber tree	*Magnolia acuminata L.*
279	White oak	*Quercus alba L.*
	Swamp white oak	*Quercus bicolor Willd.*
	European beech	*Fagus sylvatica L.*
281	Ornamental arborvitae	
283	Ornamental nursery	
285	Japanese larch	*Larix kaempferi Sarg.*
	Tulip tree	*Liriodendron tulipifera L.*
	Red oak (underplanting)	*Quercus borealis maxima Ashe.*
	Red oak	*Quercus borealis maxima Ashe.*
286	European larch	*Larix decidua Mill.*
287	Chinese chestnut	*Castanea mollissima*
	Scotch pine (Xmas trees)	*Pinus sylvestris L.*
	Red pine (Xmas trees)	*Pinus resinosa Ait.*
288	Ornamental junipers	
289	Ornamental junipers	
290	Douglas fir	*Pseudatsuga taxifolia Britt.*
	Fraser fir	*Abies fraseri Poir.*
291	Jersey pine	*Pinus virginiana Mill.*
	Chinese pine	*Pinus tabulaeformis*
	Japanese black pine	*Pinus thunbergii Sieb. & Zucc.*
292	Russian mulberry	*Morus alba tatarica Loud.*
	Catalpa sp.	
	Japanese poplar	*Populus maximowiczii Henry.*
293	White pine	*Pinus strobus L.*
	Scotch pine	*Pinus sylvestris L.*
	Japanese poplar	*Populus maximowiczii Henry.*
294	Sweet gum	*Liquidambar styracaflua L.*
295	Bald cypress	*Taxodium distichum Rich.*
296	Corsican pine	*Pinus nigra calibrica Schneid.*
297	Scotch pine (German strain)	*Pinus sylvestris L.*
298	Scotch pine (Finnish strain)	*Pinus sylvestris L.*
299	Scotch pine (Riga strain)	*Pinus sylvestris L. rigensis*
300	Scotch pine	*Pinus sylvestris L.*
301	McKee hybrid poplar	*Populus trichocarpa x P. angulata*
302	Red oak	*Quercus borealis maxima Machaux*
303	European larch	*Larix decidua Mill.*
305	Scotch pine	*Pinus sylvestris L.*
	Corsican pine	*Pinus nigra calabrica Schneid.*
306	Red pine	*Pinus resinosa Ait.*
	Douglas fir	*Pseudotsuga taxifolia Britt.*
307	Dunkeld larch	*Larix eurolepsis Henry.*
308	Red maple	*Acer rubrum L.*
	Green ash	*Fraxinus pennsylvania lanceolata Sarg.*
	Catalpa sp.	
	Black walnut	*Juglans nigra L.*
309	Norway spruce	*Picea abies Karst.*
310	Ornamental yews	
312	Douglas fir	*Pseudotsuga taxifolia Britt.*
313	White pine	*Pinus strobus L.*
	Scotch pine	*Pinus sylvestris L.*
	Red oak	*Quercus borealis maxima Ashe.*
314	Red oak	*Quercus borealist maxima Ashe.*



SECREST ARBORETUM